



1

SEQUENCE LISTING

<110> ARTIS, DEAN R.
BOLLAG, GIDEON
CARD, GRAEME
MARTIN, FERNANDO
MILBURN, MICHAEL V.
ZHANG, KAM

<120> PDE5A CRYSTAL STRUCTURE AND USES

<130> 039363-1106

<140> 10/771,833
<141> 2004-02-03

<150> 60/485,627
<151> 2003-07-07

<150> 60/444,734
<151> 2003-02-03

<160> 34

<170> PatentIn Ver. 3.3

<210> 1
<211> 875
<212> PRT
<213> Homo sapiens

<400> 1
Met Glu Arg Ala Gly Pro Ser Phe Gly Gln Gln Arg Gln Gln Gln Gln
1 5 10 15
Pro Gln Gln Gln Lys Gln Gln Arg Asp Gln Asp Ser Val Glu Ala
20 25 30
Trp Leu Asp Asp His Trp Asp Phe Thr Phe Ser Tyr Phe Val Arg Lys
35 40 45
Ala Thr Arg Glu Met Val Asn Ala Trp Phe Ala Glu Arg Val His. Thr
50 55 60
Ile Pro Val Cys Lys Glu Gly Ile Arg Gly His Thr Glu Ser Cys Ser
65 70 75 80
Cys Pro Leu Gln Gln Ser Pro Arg Ala Asp Asn Ser Val Pro Gly Thr
85 90 95
Pro Thr Arg Lys Ile Ser Ala Ser Glu Phe Asp Arg Pro Leu Arg Pro
100 105 110
Ile Val Val Lys Asp Ser Glu Gly Thr Val Ser Phe Leu Ser Asp Ser
115 120 125
Glu Lys Lys Glu Gln Met Pro Leu Thr Pro Pro Arg Phe Asp His Asp
130 135 140

Glu Gly Asp Gln Cys Ser Arg Leu Leu Glu Leu Val Lys Asp Ile Ser
 145 150 155 160
 Ser His Leu Asp Val Thr Ala Leu Cys His Lys Ile Phe Leu His Ile
 165 170 175
 His Gly Leu Ile Ser Ala Asp Arg Tyr Ser Leu Phe Leu Val Cys Glu
 180 185 190
 Asp Ser Ser Asn Asp Lys Phe Leu Ile Ser Arg Leu Phe Asp Val Ala
 195 200 205
 Glu Gly Ser Thr Leu Glu Glu Val Ser Asn Asn Cys Ile Arg Leu Glu
 210 215 220
 Trp Asn Lys Gly Ile Val Gly His Val Ala Ala Leu Gly Glu Pro Leu
 225 230 235 240
 Asn Ile Lys Asp Ala Tyr Glu Asp Pro Arg Phe Asn Ala Glu Val Asp
 245 250 255
 Gln Ile Thr Gly Tyr Lys Thr Gln Ser Ile Leu Cys Met Pro Ile Lys
 260 265 270
 Asn His Arg Glu Glu Val Val Gly Val Ala Gln Ala Ile Asn Lys Lys
 275 280 285
 Ser Gly Asn Gly Gly Thr Phe Thr Glu Lys Asp Glu Lys Asp Phe Ala
 290 295 300
 Ala Tyr Leu Ala Phe Cys Gly Ile Val Leu His Asn Ala Gln Leu Tyr
 305 310 315 320
 Glu Thr Ser Leu Leu Glu Asn Lys Arg Asn Gln Val Leu Leu Asp Leu
 325 330 335
 Ala Ser Leu Ile Phe Glu Glu Gln Gln Ser Leu Glu Val Ile Leu Lys
 340 345 350
 Lys Ile Ala Ala Thr Ile Ile Ser Phe Met Gln Val Gln Lys Cys Thr
 355 360 365
 Ile Phe Ile Val Asp Glu Asp Cys Ser Asp Ser Phe Ser Ser Val Phe
 370 375 380
 His Met Glu Cys Glu Glu Leu Glu Lys Ser Ser Asp Thr Leu Thr Arg
 385 390 395 400
 Glu His Asp Ala Asn Lys Ile Asn Tyr Met Tyr Ala Gln Tyr Val Lys
 405 410 415
 Asn Thr Met Glu Pro Leu Asn Ile Pro Asp Val Ser Lys Asp Lys Arg
 420 425 430
 Phe Pro Trp Thr Thr Glu Asn Thr Gly Asn Val Asn Gln Gln Cys Ile
 435 440 445

Arg Ser Leu Leu Cys Thr Pro Ile Lys Asn Gly Lys Lys Asn Lys Val
 450 455 460
 Ile Gly Val Cys Gln Leu Val Asn Lys Met Glu Glu Asn Thr Gly Lys
 465 470 475 480
 Val Lys Pro Phe Asn Arg Asn Asp Glu Gln Phe Leu Glu Ala Phe Val
 485 490 495
 Ile Phe Cys Gly Leu Gly Ile Gln Asn Thr Gln Met Tyr Glu Ala Val
 500 505 510
 Glu Arg Ala Met Ala Lys Gln Met Val Thr Leu Glu Val Leu Ser Tyr
 515 520 525
 His Ala Ser Ala Ala Glu Glu Glu Thr Arg Glu Leu Gln Ser Leu Ala
 530 535 540
 Ala Ala Val Val Pro Ser Ala Gln Thr Leu Lys Ile Thr Asp Phe Ser
 545 550 555 560
 Phe Ser Asp Phe Glu Leu Ser Asp Leu Glu Thr Ala Leu Cys Thr Ile
 565 570 575
 Arg Met Phe Thr Asp Leu Asn Leu Val Gln Asn Phe Gln Met Lys His
 580 585 590
 Glu Val Leu Cys Arg Trp Ile Leu Ser Val Lys Lys Asn Tyr Arg Lys
 595 600 605
 Asn Val Ala Tyr His Asn Trp Arg His Ala Phe Asn Thr Ala Gln Cys
 610 615 620
 Met Phe Ala Ala Leu Lys Ala Gly Lys Ile Gln Asn Lys Leu Thr Asp
 625 630 635 640
 Leu Glu Ile Leu Ala Leu Leu Ile Ala Ala Leu Ser His Asp Leu Asp
 645 650 655
 His Arg Gly Val Asn Asn Ser Tyr Ile Gln Arg Ser Glu His Pro Leu
 660 665 670
 Ala Gln Leu Tyr Cys His Ser Ile Met Glu His His His Phe Asp Gln
 675 680 685
 Cys Leu Met Ile Leu Asn Ser Pro Gly Asn Gln Ile Leu Ser Gly Leu
 690 695 700
 Ser Ile Glu Glu Tyr Lys Thr Thr Leu Lys Ile Ile Lys Gln Ala Ile
 705 710 715 720
 Leu Ala Thr Asp Leu Ala Leu Tyr Ile Lys Arg Arg Gly Glu Phe Phe
 725 730 735
 Glu Leu Ile Arg Lys Asn Gln Phe Asn Leu Glu Asp Pro His Gln Lys
 740 745 750

Glu Leu Phe Leu Ala Met Leu Met Thr Ala Cys Asp Leu Ser Ala Ile
 755 760 765
 Thr Lys Pro Trp Pro Ile Gln Gln Arg Ile Ala Glu Leu Val Ala Thr
 770 775 780
 Glu Phe Phe Asp Gln Gly Asp Arg Glu Arg Lys Glu Leu Asn Ile Glu
 785 790 795 800
 Pro Thr Asp Leu Met Asn Arg Glu Lys Lys Asn Lys Ile Pro Ser Met
 805 810 815
 Gln Val Gly Phe Ile Asp Ala Ile Cys Leu Gln Leu Tyr Glu Ala Leu
 820 825 830
 Thr His Val Ser Glu Asp Cys Phe Pro Leu Leu Asp Gly Cys Arg Lys
 835 840 845
 Asn Arg Gln Lys Trp Gln Ala Leu Ala Glu Gln Gln Glu Lys Met Leu
 850 855 860
 Ile Asn Gly Glu Ser Gly Gln Ala Lys Arg Asn
 865 870 875

<210> 2
 <211> 3106
 <212> DNA
 <213> Homo sapiens

<400> 2
 gcggccgcgc tccggccgct ttgtcgaaag ccggccccac tggagcagga cgaaggggga 60
 gggtctcgag gccgagtcct gttcttctga gggacggacc ccagctgggg tggaaaagca 120
 gtaccagaga gcctccgagg cgcgccgtgc caaccatgga gcggggccggc cccagcttcg 180
 ggcagcagcg acagcagcag cagcccccagc agcagaagca gcagcagagg gatcaggact 240
 cggtcgaagc atggctggac gatcaactggg actttacctt ctcatacttt gttagaaaag 300
 ccaccagaga aatggtaat gcatggttt ctgagagagt tcacaccatc cctgtgtgca 360
 aggaaggat cagaggccac accgaatctt gctcttgccc cttgcagcag agtcctcg 420
 cagataaacag tgcctcttggaa acaccaacca gaaaaatctc tgccctctgaa tttgaccggc 480
 ctcttagacc cattgttgc aaggattctg agggaaactgt gagcttcctc tctgactcag 540
 aaaagaagga acagatgctt ctaacccttc caaggtttga tcatgatgaa ggggaccagt 600
 gctcaagact cttggaaatta gtgaaggata tttctagtc tttggatgtc acagccttat 660
 gtcacaaaat tttcttgcat atccatggac tgatatatctc tgaccgctat tccctgttcc 720
 ttgtctgtga agacagctcc aatgacaagt ttctttagcag ccgcctctt gatgttgctg 780
 aaggtcaac actggaaagaa gttcaaata actgtatccg cttagaatgg aacaaaggca 840
 ttgtgggaca tgtggcagcg cttggtgagc ctttgaacat caaatgca tatgaggatc 900
 ctcggttcaa tgcagaaggat gaccaaaatta caggctacaa gacacaaagc attctttgt 960
 tgccaattaa gaatcatagg gaagagggtt ttgggtgtac ccaggccatc aacaagaaat 1020
 caggaaacgg tgggacattt actggaaaag atgaaaagga ctttgcgtc tatttggcat 1080
 tttgtggat ttgtcttcat aatgctcagc tctatgagac ttcaactgctg gagaacaaga 1140
 gaaatcaggt gctgcttgac cttgcttagtt taattttga agaacaacaa tcatttggaa 1200
 taattttggaa gaaaatagct gccactatta tctctttcat gcaagtgcag aaatgcacca 1260
 ttttcatagt ggatgaagat tgctccgatt cttttcttag tttgtttcac atggagtgtg 1320
 aggaattaga aaaatcatct gatacattaa caagggaaaca tttatgcacaaaatcaatt 1380
 acatgtatgc tcagttatgtc aaaatacta tggaccact taatatccca gatgtcagta 1440
 aggataaaag atttccctgg acaactgaaa atacaggaaa ttgtaaaccag cagtgcattt 1500
 gaagtttgct ttgtacacat ataaaaatg gaaagaagaa taaatgtata ggggtttgcc 1560
 aacttgttaa taagatggag gagaatactg gcaaggttaa gccttcaac cgaaatgcac 1620

aacagtttct ggaagctttt gtcatctttt gtggcttggg gatccagaac acgcagatgt 1680
 atgaagcagt ggagagagcc atggccaagc aaatggtcac attggaggtt ctgtcgatc 1740
 atgcttcagc agcagaggaa gaaacaagag agctacagtc gtttagcggct gctgtgggtgc 1800
 catctgccca gacccttaaa attactgact tttagcttcag tgactttgag ctgtctgatc 1860
 tggaaacagc actgtgtaca attcgatgt ttactgaccc caaccttgtg cagaacttcc 1920
 agatgaaaaca tgaggttctt tgcagatgga ttttaagtgt taagaagaat tatcggaaaga 1980
 atgttgccct tcataattgg agacatgcct ttaatacagc tcagtgcatg tttgctgctc 2040
 taaaaggcagg caaaaatttcag aacaagctga ctgaccttgg gataacttgc ttgctgattt 2100
 ctgcactaag ccacgattt gatcaccgtg gtgtgaataa ctcttacata cagcgaagtg 2160
 aacatccact tgcccagctt tactgccatt caatcatgga acaccatcat tttgaccagt 2220
 gcctgtatgt tcttaatagt ccaggaatc agattcttcag tggcctctcc attgaagaat 2280
 ataagaccac gttgaaaata atcaagcaag ctattttagc tacagaccta gcactgtaca 2340
 ttaagaggcg aggagaattt tttgaactta taagaaaaaa tcaattcaat ttggaagatc 2400
 ctcatcaaaa ggagttgttt ttggcaatgc tgatgacagc ttgtgatctt tctgcaatta 2460
 caaaaacctg gccttattcaa caacggatag cagaacttgtt agcaactgaa ttttttgatc 2520
 aaggagacag agagagaaaaa gaactcaaca tagaaccac tgatctaattt aacagggaga 2580
 agaaaaacaa aatcccaagt atgcaagttt ggttcataga tgccatctgc ttgcaactgt 2640
 atgaggccct gaccacgtg tcagaggact gtttcccttt gctagatggc tgcagaaaga 2700
 acaggcagaa atggcaggcc cttgcagaac agcaggagaa gatgctgatt aatggggaaa 2760
 gcggccaggc caagcggaaac tgtagttttt atttcatgca gagtttgaatg ttacagagat 2820
 ggtgtttctt gcaatatgcc tagtttctta cacactgtct gtatagtgtc tttttttttt 2880
 atatactttt ccactgctgt atttttttt ttgcacaact tttgagagta tagcatgaat 2940
 gtttttagag gactattaca tattttttt atattttttt tatgtctactg aactgaaagg 3000
 atcaacaaca tccactgtta gcacatttatg aaaaggattt tttgtatat ttcgtgtact 3060
 gcaaaagtgtt tgcagtattt ttgcactgag gtttttttgc ttgggg 3106

```

<210> 3
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 3
      gtcgtatcat atgtcagcag cagaggaaga aac 33

<210> 4
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      primer

<400> 4
      tctgcagtcg acaggccact cagttccgct tg 32

<210> 5
<211> 391
<212> DNA
<213> Artificial Sequence
  
```

```

<220>
<223> Description of Artificial Sequence: Synthetic
      Pet15S construct

<220>
<221> CDS
<222> (108)..(170)

<400> 5
agatctcgat cccgcgaaat taatacgact cactataggg gaatttgtgag cggataacaa 60
ttccccctcta gaaataattt tgtttaactt taagaaggag atatacc atg ggc agc    116
                                         Met Gly Ser
                                         1

agc cat cat cat cat cac agc ggc ctg gtg ccg cgc ggc agc    164
Ser His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser
      5           10          15

cat atg ggatccggaa ttcaaaggcc tacgtcgact agagcctgca gtctcgacca    220
His Met
      20

tcatcatcat catcatatat aaaagggcga attccagcac actggcggcc gttacttagtg 280
gatccggctg ctaacaaagc ccgaaaggaa gctgagttgg ctgctgccac cgctgagcaa 340
taactagcat aacccttgg ggcctctaaa cgggtcttga ggggtttttt g            391

<210> 6
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      Pet15S construct

<400> 6
Met Gly Ser Ser His His His His His Ser Ser Gly Leu Val Pro
      1           5           10          15

Arg Gly Ser His Met
      20

<210> 7
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      6xHis tag

```

<400> 7
 His His His His His His
 1 5

<210> 8
 <211> 366
 <212> PRT
 <213> Homo sapiens

<400> 8
 Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
 1 5 10 15

Arg Gly Ser His Met Ser Ala Ala Glu Glu Glu Thr Arg Glu Leu Gln
 20 25 30

Ser Leu Ala Ala Ala Val Val Pro Ser Ala Gln Thr Leu Lys Ile Thr
 35 40 45

Asp Phe Ser Phe Ser Asp Phe Glu Leu Ser Asp Leu Glu Thr Ala Leu
 50 55 60

Cys Thr Ile Arg Met Phe Thr Asp Leu Asn Leu Val Gln Asn Phe Gln
 65 70 75 80

Met Lys His Glu Val Leu Cys Arg Trp Ile Leu Ser Val Lys Lys Asn
 85 90 95

Tyr Arg Lys Asn Val Ala Tyr His Asn Trp Arg His Ala Phe Asn Thr
 100 105 110

Ala Gln Cys Met Phe Ala Ala Leu Lys Ala Gly Lys Ile Gln Asn Lys
 115 120 125

Leu Thr Asp Leu Glu Ile Leu Ala Leu Ile Ala Ala Leu Ser His
 130 135 140

Asp Leu Asp His Arg Gly Val Asn Asn Ser Tyr Ile Gln Arg Ser Glu
 145 150 155 160

His Pro Leu Ala Gln Leu Tyr Cys His Ser Ile Met Glu His His His
 165 170 175

Phe Asp Gln Cys Leu Met Ile Leu Asn Ser Pro Gly Asn Gln Ile Leu
 180 185 190

Ser Gly Leu Ser Ile Glu Glu Tyr Lys Thr Thr Leu Lys Ile Ile Lys
 195 200 205

Gln Ala Ile Leu Ala Thr Asp Leu Ala Leu Tyr Ile Lys Arg Arg Gly
 210 215 220

Glu Phe Phe Glu Leu Ile Arg Lys Asn Gln Phe Asn Leu Glu Asp Pro
 225 230 235 240

His Gln Lys Glu Leu Phe Leu Ala Met Leu Met Thr Ala Cys Asp Leu
 245 250 255

Ser Ala Ile Thr Lys Pro Trp Pro Ile Gln Gln Arg Ile Ala Glu Leu			
260	265	270	
Val Ala Thr Glu Phe Phe Asp Gln Gly Asp Arg Glu Arg Lys Glu Leu			
275	280	285	
Asn Ile Glu Pro Thr Asp Leu Met Asn Arg Glu Lys Lys Asn Lys Ile			
290	295	300	
Pro Ser Met Gln Val Gly Phe Ile Asp Ala Ile Cys Leu Gln Leu Tyr			
305	310	315	320
Glu Ala Leu Thr His Val Ser Glu Asp Cys Phe Pro Leu Leu Asp Gly			
325	330	335	
Cys Arg Lys Asn Arg Gln Lys Trp Gln Ala Leu Ala Glu Gln Gln Glu			
340	345	350	
Lys Met Leu Ile Asn Gly Glu Ser Gly Gln Ala Lys Arg Asn			
355	360	365	

<210> 9
<211> 1185
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
Pet15s construct

<400> 9
atataccatg ggcagcagcc atcatcatca tcatcacacg agcggcctgg tgccgcgcgg 60
cagccatcg tcagcagcag aggaagaaac aagagagcta cagtcgttag cggctgctgt 120
ggtgcacatct gcccagaccc ttaaaattac tgacttttagc ttcaagtactt ttgagctgtc 180
tgatctggaa acagcactgt gtacaattcg gatgtttact gacctaacc ttgtgcagaa 240
cttccagatg aaacatgagg ttctttgcag atggattta agtgttaaga agaattatcg 300
gaagaatgtt gccttatata attggagaca tgccttaat acagctcgt gcatgtttgc 360
tgctctaaaaa gcaggcaaaa ttcagaacaa gctgactgac ctggagatac ttgcattgtc 420
gattgtcgca ctaagccacg atttggatca cctgtgtgt aataactctt acatacagcg 480
aagtgaacat ccacttgccc agcttactg ccattcaatc atggAACACCC atcattttga 540
ccagtgcctg atgattctt atagtcagg caatcagatt ctcagtggcc tctccatttg 600
agaatataag accacgttga aaataatcaa gcaagctatt ttagtacag accttagca 660
gtacattaag aggcgaggag aatttttga acttataaga aaaaatcaat tcaatttgaa 720
agatcctcat caaaaggagt tgTTTTGGC aatgtctgtg acagcttgc atctttctgc 780
aattacaaaa ccctggccta ttcaacaacg gatagcagaa cttgttagcaa ctgaattttt 840
tgatcaagga gacagagaga gaaaagaact caacatagaa cccactgatc taatgaacag 900
ggagaagaaa aacaaaatcc caagtatgca agttgggttc atagatgcca tctgcttgc 960
actgtatgag gccctgaccc acgtgtcaga ggactgttc cctttgttag atggctgcag 1020
aaagaacagg cagaaatgcc agggcccttgc agaacagcag gagaagatgc tgattaatgg 1080
ggaaagcggc caggccaagc ggaactgagt ggcctgtcga ctagagcctg cagtctcgac 1140
catcatcatc atcatcatata ataaaagggc gaattccagc acact 1185

<210> 10
 <211> 341
 <212> PRT
 <213> Homo sapiens

<400> 10
 Leu Asn Asn Thr Ser Ile Ser Arg Phe Gly Val Asn Thr Glu Asn Glu
 1 5 10 15

Asp His Leu Ala Lys Glu Leu Glu Asp Leu Asn Lys Trp Gly Leu Asn
 20 25 30

Ile Phe Asn Val Ala Gly Tyr Ser His Asn Arg Pro Leu Thr Cys Ile
 35 40 45

Met Tyr Ala Ile Phe Gln Glu Arg Asp Leu Leu Lys Thr Phe Arg Ile
 50 55 60

Ser Ser Asp Thr Phe Ile Thr Tyr Met Met Thr Leu Glu Asp His Tyr
 65 70 75 80

His Ser Asp Val Ala Tyr His Asn Ser Leu His Ala Ala Asp Val Ala
 85 90 95

Gln Ser Thr His Val Leu Leu Ser Thr Pro Ala Leu Asp Ala Val Phe
 100 105 110

Thr Asp Leu Glu Ile Leu Ala Ala Ile Phe Ala Ala Ala Ile His Asp
 115 120 125

Val Asp His Pro Gly Val Ser Asn Gln Phe Leu Ile Asn Thr Asn Ser
 130 135 140

Glu Leu Ala Leu Met Tyr Asn Asp Glu Ser Val Leu Glu Asn His His
 145 150 155 160

Leu Ala Val Gly Phe Lys Leu Leu Gln Glu Glu His Cys Asp Ile Phe
 165 170 175

Met Asn Leu Thr Lys Lys Gln Arg Gln Thr Leu Arg Lys Met Val Ile
 180 185 190

Asp Met Val Leu Ala Thr Asp Met Ser Lys His Met Ser Leu Leu Ala
 195 200 205

Asp Leu Lys Thr Met Val Glu Thr Lys Lys Val Thr Ser Ser Gly Val
 210 215 220

Leu Leu Leu Asp Asn Tyr Thr Asp Arg Ile Gln Val Leu Arg Asn Met
 225 230 235 240

Val His Cys Ala Asp Leu Ser Asn Pro Thr Lys Ser Leu Glu Leu Tyr
 245 250 255

Arg Gln Trp Thr Asp Arg Ile Met Glu Glu Phe Phe Gln Gln Gly Asp
 260 265 270

Lys Glu Arg Glu Arg Gly Met Glu Ile Ser Pro Met Cys Asp Lys His
 275 280 285

Thr Ala Ser Val Glu Lys Ser Gln Val Gly Phe Ile Asp Tyr Ile Val
 290 295 300

His Pro Leu Trp Glu Thr Trp Ala Asp Leu Val Gln Pro Asp Ala Gln
 305 310 315 320

Asp Ile Leu Asp Thr Leu Glu Asp Asn Arg Asn Trp Tyr Gln Ser Met
 325 330 335

Ile Pro Gln Ser Pro
 340

<210> 11
 <211> 337
 <212> PRT
 <213> Homo sapiens

<400> 11
 Ser Ile Ser Arg Phe Gly Val Asn Thr Glu Asn Glu Asp His Leu Ala
 1 5 10 15

Lys Glu Leu Glu Asp Leu Asn Lys Trp Gly Leu Asn Ile Phe Asn Val
 20 25 30

Ala Gly Tyr Ser His Asn Arg Pro Leu Thr Cys Ile Met Tyr Ala Ile
 35 40 45

Phe Gln Glu Arg Asp Leu Leu Lys Thr Phe Arg Ile Ser Ser Asp Thr
 50 55 60

Phe Ile Thr Tyr Met Met Thr Leu Glu Asp His Tyr His Ser Asp Val
 65 70 75 80

Ala Tyr His Asn Ser Leu His Ala Ala Asp Val Ala Gln Ser Thr His
 85 90 95

Val Leu Leu Ser Thr Pro Ala Leu Asp Ala Val Phe Thr Asp Leu Glu
 100 105 110

Ile Leu Ala Ala Ile Phe Ala Ala Ala Ile His Asp Val Asp His Pro
 115 120 125

Gly Val Ser Asn Gln Phe Leu Ile Asn Thr Asn Ser Glu Leu Ala Leu
 130 135 140

Met Tyr Asn Asp Glu Ser Val Leu Glu Asn His His Leu Ala Val Gly
 145 150 155 160

Phe Lys Leu Leu Gln Glu Glu His Cys Asp Ile Phe Met Asn Leu Thr
 165 170 175

Lys Lys Gln Arg Gln Thr Leu Arg Lys Met Val Ile Asp Met Val Leu
 180 185 190

Ala Thr Asp Met Ser Lys His Met Ser Leu Leu Ala Asp Leu Lys Thr
 195 200 205

Met Val Glu Thr Lys Lys Val Thr Ser Ser Gly Val Leu Leu Leu Asp
 210 215 220

Asn Tyr Thr Asp Arg Ile Gln Val Leu Arg Asn Met Val His Cys Ala
 225 230 235 240

Asp Leu Ser Asn Pro Thr Lys Ser Leu Glu Leu Tyr Arg Gln Trp Thr
 245 250 255

Asp Arg Ile Met Glu Glu Phe Phe Gln Gln Gly Asp Lys Glu Arg Glu
 260 265 270

Arg Gly Met Glu Ile Ser Pro Met Cys Asp Lys His Thr Ala Ser Val
 275 280 285

Glu Lys Ser Gln Val Gly Phe Ile Asp Tyr Ile Val His Pro Leu Trp
 290 295 300

Glu Thr Trp Ala Asp Leu Val Gln Pro Asp Ala Gln Asp Ile Leu Asp
 305 310 315 320

Thr Leu Glu Asp Asn Arg Asn Trp Tyr Gln Ser Met Ile Pro Gln Ala
 325 330 335

Pro

<210> 12
 <211> 341
 <212> PRT
 <213> Homo sapiens

<400> 12
 Leu Thr Asn Ser Ser Ile Pro Arg Phe Gly Val Lys Thr Glu Gln Glu
 1 5 10 15

Asp Val Leu Ala Lys Glu Leu Glu Asp Val Asn Lys Trp Gly Leu His
 20 25 30

Val Phe Arg Ile Ala Glu Leu Ser Gly Asn Arg Pro Leu Thr Val Ile
 35 40 45

Met His Thr Ile Phe Gln Glu Arg Asp Leu Leu Lys Thr Phe Lys Ile
 50 55 60

Pro Val Asp Thr Leu Ile Thr Tyr Leu Met Thr Leu Glu Asp His Tyr
 65 70 75 80

His Ala Asp Val Ala Tyr His Asn Asn Ile His Ala Ala Asp Val Val
 85 90 95

Gln Ser Thr His Val Leu Leu Ser Thr Pro Ala Leu Glu Ala Val Phe
 100 105 110

Thr Asp Leu Glu Ile Leu Ala Ala Ile Phe Ala Ser Ala Ile His Asp
 115 120 125

Val Asp His Pro Gly Val Ser Asn Gln Phe Leu Ile Asn Thr Asn Ser
 130 135 140

Glu Leu Ala Leu Met Tyr Asn Asp Ser Ser Val Leu Glu Asn His His
 145 150 155 160

Leu Ala Val Gly Phe Lys Leu Leu Gln Glu Glu Asn Cys Asp Ile Phe
 165 170 175

Gln Asn Leu Thr Lys Lys Gln Arg Gln Ser Leu Arg Lys Met Val Ile
 180 185 190

Asp Ile Val Leu Ala Thr Asp Met Ser Lys His Met Asn Leu Leu Ala
 195 200 205

Asp Leu Lys Thr Met Val Glu Thr Lys Lys Val Thr Ser Ser Gly Val
 210 215 220

Leu Leu Leu Asp Asn Tyr Ser Asp Arg Ile Gln Val Leu Gln Asn Met
 225 230 235 240

Val His Cys Ala Asp Leu Ser Asn Pro Thr Lys Pro Leu Gln Leu Tyr
 245 250 255

Arg Gln Trp Thr Asp Arg Ile Met Glu Glu Phe Phe Pro Gln Gly Asp
 260 265 270

Arg Glu Arg Glu Arg Gly Met Glu Ile Ser Pro Met Cys Asp Lys His
 275 280 285

Asn Ala Ser Val Glu Lys Ser Gln Val Gly Phe Ile Asp Tyr Ile Val
 290 295 300

His Pro Leu Trp Glu Thr Trp Ala Asp Leu Val His Pro Asp Ala Gln
 305 310 315 320

Asp Ile Leu Asp Thr Leu Glu Asp Asn Arg Glu Trp Tyr Gln Ser Thr
 325 330 335

Ile Pro Gln Ser Pro
 340

<210> 13

<211> 341

<212> PRT

<213> Homo sapiens

<400> 13

Leu Asn Asn Ser Asn Ile Pro Arg Phe Gly Val Lys Thr Asp Gln Glu
 1 5 10 15

Glu Leu Leu Ala Gln Glu Leu Glu Asn Leu Asn Lys Trp Gly Leu Asn
 20 25 30

Ile Phe Cys Val Ser Asp Tyr Ala Gly Gly Arg Ser Leu Thr Cys Ile
 35 40 45

Met Tyr Met Ile Phe Gln Glu Arg Asp Leu Leu Lys Lys Phe Arg Ile
 50 55 60

Pro Val Asp Thr Met Val Thr Tyr Met Leu Thr Leu Glu Asp His Tyr
 65 70 80

His Ala Asp Val Ala Tyr His Asn Ser Leu His Ala Ala Asp Val Leu
 85 90 95

Gln Ser Thr His Val Leu Leu Ala Thr Pro Ala Leu Asp Ala Val Phe
 100 105 110

Thr Asp Leu Glu Ile Leu Ala Ala Leu Phe Ala Ala Ile His Asp
 115 120 125

Val Asp His Pro Gly Val Ser Asn Gln Phe Leu Ile Asn Thr Asn Ser
 130 135 140

Glu Leu Ala Leu Met Tyr Asn Asp Glu Ser Val Leu Glu Asn His His
 145 150 155 160

Leu Ala Val Gly Phe Lys Leu Leu Gln Glu Asp Asn Cys Asp Ile Phe
 165 170 175

Gln Asn Leu Ser Lys Arg Gln Arg Gln Ser Leu Arg Lys Met Val Ile
 180 185 190

Asp Met Val Leu Ala Thr Asp Met Ser Lys His Met Thr Leu Leu Ala
 195 200 205

Asp Leu Lys Thr Met Val Glu Thr Lys Lys Val Thr Ser Ser Gly Val
 210 215 220

Leu Leu Leu Asp Asn Tyr Ser Asp Arg Ile Gln Val Leu Arg Asn Met
 225 230 235 240

Val His Cys Ala Asp Leu Ser Asn Pro Thr Lys Pro Leu Glu Leu Tyr
 245 250 255

Arg Gln Trp Thr Asp Arg Ile Met Ala Glu Phe Phe Gln Gln Gly Asp
 260 265 270

Arg Glu Arg Glu Arg Gly Met Glu Ile Ser Pro Met Cys Asp Lys His
 275 280 285

Thr Ala Ser Val Glu Lys Ser Gln Val Gly Phe Ile Asp Tyr Ile Val
 290 295 300

His Pro Leu Trp Glu Thr Trp Ala Asp Leu Val His Pro Asp Ala Gln
 305 310 315 320

Glu Ile Leu Asp Thr Leu Glu Asp Asn Arg Asp Trp Tyr Tyr Ser Ala
 325 330 335

Ile Arg Gln Ser Pro
340

<210> 14
<211> 341
<212> PRT
<213> Homo sapiens

<400> 14
Leu Ser Ser Ala Thr Val Pro Arg Phe Gly Val Gln Thr Asp Gln Glu
1 5 10 15

Glu Gln Leu Ala Lys Asp Val Glu Asp Thr Asn Lys Trp Gly Leu Asp
20 25 30

Val Phe Lys Val Ala Glu Leu Ser Gly Asn Arg Pro Leu Thr Ala Ile
35 40 45

Ile Phe Ser Ile Phe Gln Glu Arg Asp Leu Leu Lys Thr Phe Gln Ile
50 55 60

Pro Ala Asp Thr Leu Ala Thr Tyr Leu Leu Met Leu Glu Gly His Tyr
65 70 75 80

His Ala Asn Val Ala Tyr His Asn Ser Leu His Ala Ala Asp Val Ala
85 90 95

Gln Ser Thr His Val Leu Leu Ala Thr Pro Ala Leu Glu Ala Val Phe
100 105 110

Thr Asp Leu Glu Ile Leu Ala Ala Leu Phe Ala Ser Ala Ile His Asp
115 120 125

Val Asp His Pro Gly Val Ser Asn Gln Phe Leu Ile Asn Thr Asn Ser
130 135 140

Asp Val Ala Leu Met Tyr Asn Asp Ala Ser Val Leu Glu Asn His His
145 150 155 160

Leu Ala Val Gly Phe Lys Leu Leu Gln Ala Glu Asn Cys Asp Ile Phe
165 170 175

Gln Asn Leu Ser Ala Lys Gln Arg Leu Ser Leu Arg Arg Met Val Ile
180 185 190

Asp Met Val Leu Ala Thr Asp Met Ser Lys His Met Asn Leu Leu Ala
195 200 205

Asp Leu Lys Thr Met Val Glu Thr Lys Lys Val Thr Ser Leu Gly Val
210 215 220

Leu Leu Leu Asp Asn Tyr Ser Asp Arg Ile Gln Val Leu Gln Asn Leu
225 230 235 240

Val His Cys Ala Asp Leu Ser Asn Pro Thr Lys Pro Leu Pro Leu Tyr
245 250 255

Arg Gln Trp Thr Asp Arg Ile Met Ala Glu Phe Phe Gln Gln Gly Asp
 260 265 270
 Arg Glu Arg Glu Ser Gly Leu Asp Ile Ser Pro Met Cys Asp Lys His
 275 280 285
 Thr Ala Ser Val Glu Lys Ser Gln Val Gly Phe Ile Asp Tyr Ile Ala
 290 295 300
 His Pro Leu Trp Glu Thr Trp Ala Asp Leu Val His Pro Asp Ala Gln
 305 310 315 320
 Asp Leu Leu Asp Thr Leu Glu Asp Asn Arg Glu Trp Tyr Gln Ser Lys
 325 330 335
 Ile Pro Arg Ser Pro
 340

<210> 15
 <211> 392
 <212> PRT
 <213> Homo sapiens

<400> 15
 Glu Arg Met Tyr Arg Lys Thr Tyr His Met Val Gly Leu Ala Tyr Pro
 1 5 10 15
 Ala Ala Val Ile Val Thr Leu Lys Asp Val Asp Lys Trp Ser Phe Asp
 20 25 30
 Val Phe Ala Leu Asn Glu Ala Ser Gly Glu His Ser Leu Lys Phe Met
 35 40 45
 Ile Tyr Glu Leu Phe Thr Arg Tyr Asp Leu Ile Asn Arg Phe Lys Ile
 50 55 60
 Pro Val Ser Cys Leu Ile Thr Phe Ala Glu Ala Leu Glu Val Gly Tyr
 65 70 75 80
 Ser Lys Tyr Lys Asn Pro Tyr His Asn Leu Ile His Ala Ala Asp Val
 85 90 95
 Thr Gln Thr Val His Tyr Ile Met Leu His Thr Gly Ile Met His Trp
 100 105 110
 Leu Thr Glu Leu Glu Ile Leu Ala Met Val Phe Ala Ala Ile His
 115 120 125
 Asp Tyr Glu His Thr Gly Thr Thr Asn Asn Phe His Ile Gln Thr Arg
 130 135 140
 Ser Asp Val Ala Ile Leu Tyr Asn Asp Arg Ser Val Leu Glu Asn His
 145 150 155 160
 His Val Ser Ala Ala Tyr Arg Leu Met Gln Glu Glu Met Asn Ile
 165 170 175

Leu Ile Asn Leu Ser Lys Asp Asp Trp Arg Asp Leu Arg Asn Leu Val
 180 185 190
 Ile Glu Met Val Leu Ser Thr Asp Met Ser Gly His Phe Gln Gln Ile
 195 200 205
 Lys Asn Ile Arg Asn Ser Leu Gln Gln Pro Glu Gly Ile Asp Arg Ala
 210 215 220
 Lys Thr Met Ser Leu Ile Leu His Ala Ala Asp Ile Ser His Pro Ala
 225 230 235 240
 Lys Ser Trp Lys Leu His Tyr Arg Trp Thr Met Ala Leu Met Glu Glu
 245 250 255
 Phe Phe Leu Gln Gly Asp Lys Glu Ala Glu Leu Gly Leu Pro Phe Ser
 260 265 270
 Pro Leu Cys Asp Arg Lys Ser Thr Met Val Ala Gln Ser Gln Ile Gly
 275 280 285
 Phe Ile Asp Phe Ile Val Glu Pro Thr Phe Ser Leu Leu Thr Asp Ser
 290 295 300
 Thr Glu Lys Ile Val Ile Pro Leu Ile Glu Glu Ala Ser Lys Ala Glu
 305 310 315 320
 Thr Ser Ser Tyr Val Ala Ser Ser Ser Thr Thr Ile Val Gly Leu His
 325 330 335
 Ile Ala Asp Ala Leu Arg Arg Ser Asn Thr Lys Gly Ser Met Ser Asp
 340 345 350
 Gly Ser Tyr Ser Pro Asp Tyr Ser Leu Ala Ala Val Asp Leu Lys Ser
 355 360 365
 Phe Lys Asn Asn Leu Val Asp Ile Ile Gln Gln Asn Lys Glu Arg Trp
 370 375 380
 Lys Glu Leu Ala Ala Gln Arg Ala
 385 390

<210> 16
 <211> 389
 <212> PRT
 <213> Homo sapiens

<400> 16
 Glu Arg Met Tyr Arg Arg Thr Ser Asn Met Val Gly Leu Ser Tyr Pro
 1 5 10 15
 Pro Ala Val Ile Glu Ala Leu Lys Asp Val Asp Lys Trp Ser Phe Asp
 20 25 30
 Val Phe Ser Leu Asn Glu Ala Ser Gly Asp His Ala Leu Lys Phe Ile
 35 40 45

Phe Tyr Glu Leu Leu Thr Arg Tyr Asp Leu Ile Ser Arg Phe Lys Ile
 50 55 60

Pro Ile Ser Ala Leu Val Ser Phe Val Glu Ala Leu Glu Val Gly Tyr
 65 70 75 80

Ser Lys His Lys Asn Pro Tyr His Asn Leu Met His Ala Ala Asp Val
 85 90 95

Thr Gln Thr Val His Tyr Leu Leu Tyr Lys Thr Gly Val Ala Asn Trp
 100 105 110

Leu Thr Glu Leu Glu Ile Phe Ala Ile Ile Phe Ser Ala Ala Ile His
 115 120 125

Asp Tyr Glu His Thr Gly Thr Thr Asn Asn Phe His Ile Gln Thr Arg
 130 135 140

Ser Asp Pro Ala Ile Leu Tyr Asn Asp Arg Ser Val Leu Glu Asn His
 145 150 155 160

His Leu Ser Ala Ala Tyr Arg Leu Leu Gln Asp Asp Glu Glu Met Asn
 165 170 175

Ile Leu Ile Asn Leu Ser Lys Asp Asp Trp Arg Glu Phe Arg Thr Leu
 180 185 190

Val Ile Glu Met Val Met Ala Thr Asp Met Ser Cys His Phe Gln Gln
 195 200 205

Ile Lys Ala Met Lys Thr Ala Leu Gln Gln Pro Glu Ala Ile Glu Lys
 210 215 220

Pro Lys Ala Leu Ser Leu Met Leu His Thr Ala Asp Ile Ser His Pro
 225 230 235 240

Ala Lys Ala Trp Asp Leu His His Arg Trp Thr Met Ser Leu Leu Glu
 245 250 255

Glu Phe Phe Arg Gln Gly Asp Arg Glu Ala Glu Leu Gly Leu Pro Phe
 260 265 270

Ser Pro Leu Cys Asp Arg Lys Ser Thr Met Val Ala Gln Ser Gln Val
 275 280 285

Gly Phe Ile Asp Phe Ile Val Glu Pro Thr Phe Thr Val Leu Thr Asp
 290 295 300

Met Thr Glu Lys Ile Val Ser Pro Leu Ile Asp Glu Thr Ser Gln Thr
 305 310 315 320

Gly Gly Thr Gly Gln Arg Arg Ser Ser Leu Asn Ser Ile Ser Ser Ser
 325 330 335

Asp Ala Lys Arg Ser Gly Val Lys Thr Ser Gly Ser Glu Gly Ser Ala
 340 345 350

Pro Ile Asn Asn Ser Val Ile Ser Val Asp Tyr Lys Ser Phe Lys Ala
 355 360 365

Thr Trp Thr Glu Val Val His Ile Asn Arg Glu Arg Trp Arg Ala Lys
 370 375 380

Val Pro Lys Glu Glu
 385

<210> 17
 <211> 369
 <212> PRT
 <213> Homo sapiens

<400> 17
 Glu Arg Met Phe Arg Arg Thr Tyr Thr Ser Val Gly Pro Thr Tyr Ser
 1 5 10 15

Thr Ala Val Leu Asn Cys Leu Lys Asn Leu Asp Leu Trp Cys Phe Asp
 20 25 30

Val Phe Ser Leu Asn Gln Ala Ala Asp Asp His Ala Leu Arg Thr Ile
 35 40 45

Val Phe Glu Leu Leu Thr Arg His Asn Leu Ile Ser Arg Phe Lys Ile
 50 55 60

Pro Thr Val Phe Leu Met Ser Phe Leu Asp Ala Leu Glu Thr Gly Tyr
 65 70 75 80

Gly Lys Tyr Lys Asn Pro Tyr His Asn Gln Ile His Ala Ala Asp Val
 85 90 95

Thr Gln Thr Val His Cys Phe Leu Leu Arg Thr Gly Met Val His Cys
 100 105 110

Leu Ser Glu Ile Glu Leu Leu Ala Ile Ile Phe Ala Ala Ala Ile His
 115 120 125

Asp Tyr Glu His Thr Gly Thr Thr Asn Ser Phe His Ile Gln Thr Lys
 130 135 140

Ser Glu Cys Ala Ile Val Tyr Asn Asp Arg Ser Val Leu Glu Asn His
 145 150 155 160

His Ile Ser Ser Val Phe Arg Leu Met Gln Asp Asp Glu Met Asn Ile
 165 170 175

Phe Ile Asn Leu Thr Lys Asp Glu Phe Val Glu Leu Arg Ala Leu Val
 180 185 190

Ile Glu Met Val Leu Ala Thr Asp Met Ser Cys His Phe Gln Gln Val
 195 200 205

Lys Thr Met Lys Thr Ala Leu Gln Gln Leu Glu Arg Ile Asp Lys Pro
 210 215 220

Lys Ala Leu Ser Leu Leu His Ala Ala Asp Ile Ser His Pro Thr
 225 230 235 240
 Lys Gln Trp Leu Val His Ser Arg Trp Thr Lys Ala Leu Met Glu Glu
 245 250 255
 Phe Phe Arg Gln Gly Asp Lys Glu Ala Glu Leu Gly Leu Pro Phe Ser
 260 265 270
 Pro Leu Cys Asp Arg Thr Ser Thr Leu Val Ala Gln Ser Gln Ile Gly
 275 280 285
 Phe Ile Asp Phe Ile Val Glu Pro Thr Phe Ser Val Leu Thr Asp Val
 290 295 300
 Ala Glu Lys Ser Val Gln Pro Leu Ala Asp Glu Asp Ser Lys Ser Lys
 305 310 315 320
 Asn Gln Pro Ser Phe Gln Trp Arg Gln Pro Ser Leu Asp Val Glu Val
 325 330 335
 Gly Asp Pro Asn Pro Asp Val Val Ser Phe Arg Ser Thr Trp Val Lys
 340 345 350
 Arg Ile Gln Glu Asn Lys Gln Lys Trp Lys Glu Arg Ala Ala Ser Gly
 355 360 365
 Ile

<210> 18
 <211> 430
 <212> PRT
 <213> Homo sapiens

<400> 18
 Met Phe Leu Asp Lys Pro Ile Leu Ala Pro Glu Pro Leu Val Met Asp
 1 5 10 15
 Asn Leu Asp Ser Ile Met Glu Gln Leu Asn Thr Trp Asn Phe Pro Ile
 20 25 30
 Phe Asp Leu Val Glu Asn Ile Gly Arg Lys Cys Gly Arg Ile Leu Ser
 35 40 45
 Gln Val Ser Tyr Arg Leu Phe Glu Asp Met Gly Leu Phe Glu Ala Phe
 50 55 60
 Lys Ile Pro Ile Arg Glu Phe Met Asn Tyr Phe His Ala Leu Glu Ile
 65 70 75 80
 Gly Tyr Arg Asp Ile Pro Tyr His Asn Arg Ile His Ala Thr Asp Val
 85 90 95
 Leu His Ala Val Trp Tyr Leu Thr Thr Gln Pro Ile Pro Gly Leu Ser
 100 105 110

Thr Val Ile Asn Asp His Gly Ser Thr Ser Asp Ser Asp Ser Asp Ser
 115 120 125
 Gly Phe Thr His Gly His Met Gly Tyr Val Phe Ser Lys Thr Tyr Asn
 130 135 140
 Val Thr Asp Asp Lys Tyr Gly Cys Leu Ser Gly Asn Ile Pro Ala Leu
 145 150 155 160
 Glu Leu Met Ala Leu Tyr Val Ala Ala Ala Met His Asp Tyr Asp His
 165 170 175
 Pro Gly Arg Thr Asn Ala Phe Leu Val Ala Thr Ser Ala Pro Gln Ala
 180 185 190
 Val Leu Tyr Asn Asp Arg Ser Val Leu Glu Asn His His Ala Ala Ala
 195 200 205
 Ala Trp Asn Leu Phe Met Ser Arg Pro Glu Tyr Asn Phe Leu Ile Asn
 210 215 220
 Leu Asp His Val Glu Phe Lys His Phe Arg Phe Leu Val Ile Glu Ala
 225 230 235 240
 Ile Leu Ala Thr Asp Leu Lys Lys His Phe Asp Phe Val Ala Lys Phe
 245 250 255
 Asn Gly Lys Val Asn Asp Asp Val Gly Ile Asp Trp Thr Asn Glu Asn
 260 265 270
 Asp Arg Leu Leu Val Cys Gln Met Cys Ile Lys Leu Ala Asp Ile Asn
 275 280 285
 Gly Pro Ala Lys Cys Lys Glu Leu His Leu Gln Trp Thr Asp Gly Ile
 290 295 300
 Val Asn Glu Phe Tyr Glu Gln Gly Asp Glu Glu Ala Ser Leu Gly Leu
 305 310 315 320
 Pro Ile Ser Pro Phe Met Asp Arg Ser Ala Pro Gln Leu Ala Asn Leu
 325 330 335
 Gln Glu Ser Phe Ile Ser His Ile Val Gly Pro Leu Cys Asn Ser Tyr
 340 345 350
 Asp Ser Ala Gly Leu Met Pro Gly Lys Trp Val Glu Asp Ser Asp Glu
 355 360 365
 Ser Gly Asp Thr Asp Asp Pro Glu Glu Glu Glu Glu Ala Pro Ala
 370 375 380
 Pro Asn Glu Glu Glu Thr Cys Glu Asn Asn Glu Ser Pro Lys Lys Lys
 385 390 395 400
 Thr Phe Lys Arg Arg Lys Ile Tyr Cys Gln Ile Thr Gln His Leu Leu
 405 410 415

Gln Asn His Lys Met Trp Lys Lys Val Ile Glu Glu Glu Gln
 420 425 430

<210> 19
 <211> 432
 <212> PRT
 <213> Homo sapiens

<400> 19
 Gln Gln Thr Asn Ile Glu Gln Glu Val Ser Leu Asp Leu Ile Leu Val
 1 5 10 15

Glu Glu Tyr Asp Ser Leu Ile Glu Lys Met Ser Asn Trp Asn Phe Pro
 20 25 30

Ile Phe Glu Leu Val Glu Lys Met Gly Glu Lys Ser Gly Arg Ile Leu
 35 40 45

Ser Gln Val Met Tyr Thr Leu Phe Gln Asp Thr Gly Leu Leu Glu Ile
 50 55 60

Phe Lys Ile Pro Thr Gln Gln Phe Met Asn Tyr Phe Arg Ala Leu Glu
 65 70 75 80

Asn Gly Tyr Arg Asp Ile Pro Tyr His Asn Arg Ile His Ala Thr Asp
 85 90 95

Val Leu His Ala Val Trp Tyr Leu Thr Thr Arg Pro Val Pro Gly Leu
 100 105 110

Gln Gln Ile His Asn Gly Cys Gly Thr Gly Asn Glu Thr Asp Ser Asp
 115 120 125

Gly Arg Ile Asn His Gly Arg Ile Ala Tyr Ile Ser Ser Lys Ser Cys
 130 135 140

Ser Asn Pro Asp Glu Ser Tyr Gly Cys Leu Ser Ser Asn Ile Pro Ala
 145 150 155 160

Leu Glu Leu Met Ala Leu Tyr Val Ala Ala Ala Met His Asp Tyr Asp
 165 170 175

His Pro Gly Arg Thr Asn Ala Phe Leu Val Ala Thr Asn Ala Pro Gln
 180 185 190

Ala Val Leu Tyr Asn Asp Arg Ser Val Leu Glu Asn His His Ala Ala
 195 200 205

Ser Ala Trp Asn Leu Tyr Leu Ser Arg Pro Glu Tyr Asn Phe Leu Leu
 210 215 220

His Leu Asp His Val Glu Phe Lys Arg Phe Arg Phe Leu Val Ile Glu
 225 230 235 240

Ala Ile Leu Ala Thr Asp Leu Lys Lys His Phe Asp Phe Leu Ala Glu
 245 250 255

Phe Asn Ala Lys Ala Asn Asp Val Asn Ser Asn Gly Ile Glu Trp Ser
 260 265 270
 Asn Glu Asn Asp Arg Leu Leu Val Cys Gln Val Cys Ile Lys Leu Ala
 275 280 285
 Asp Ile Asn Gly Pro Ala Lys Val Arg Asp Leu His Leu Lys Trp Thr
 290 295 300
 Glu Gly Ile Val Asn Glu Phe Tyr Glu Gln Gly Asp Glu Glu Ala Asn
 305 310 315 320
 Leu Gly Leu Pro Ile Ser Pro Phe Met Asp Arg Ser Ser Pro Gln Leu
 325 330 335
 Ala Lys Leu Gln Glu Ser Phe Ile Thr His Ile Val Gly Pro Leu Cys
 340 345 350
 Asn Ser Tyr Asp Ala Ala Gly Leu Leu Pro Gly Gln Trp Leu Glu Ala
 355 360 365
 Glu Glu Asp Asn Asp Thr Glu Ser Gly Asp Asp Glu Asp Gly Glu Glu
 370 375 380
 Leu Asp Thr Glu Asp Glu Glu Met Glu Asn Asn Leu Asn Pro Lys Pro
 385 390 395 400
 Pro Arg Arg Lys Ser Arg Arg Arg Ile Phe Cys Gln Leu Met His His
 405 410 415
 Leu Thr Glu Asn His Lys Ile Trp Lys Glu Ile Val Glu Glu Glu
 420 425 430

<210> 20
 <211> 352
 <212> PRT
 <213> Homo sapiens

<400> 20
 Met Val Ser Ser Asn Ile Ile Thr Pro Ile Ser Leu Asp Asp Val Pro
 1 5 10 15
 Pro Arg Ile Ala Arg Ala Met Glu Asn Glu Glu Tyr Trp Asp Phe Asp
 20 25 30
 Ile Phe Glu Leu Glu Ala Ala Thr His Asn Arg Pro Leu Ile Tyr Leu
 35 40 45
 Gly Leu Lys Met Phe Ala Arg Phe Gly Ile Cys Glu Phe Leu His Cys
 50 55 60
 Ser Glu Ser Thr Leu Arg Ser Trp Leu Gln Ile Ile Glu Ala Asn Tyr
 65 70 75 80

His Ser Ser Asn Pro Tyr His Asn Ser Thr His Ser Ala Asp Val Leu
 85 90 95

 His Ala Thr Ala Tyr Phe Leu Ser Lys Glu Arg Ile Lys Glu Thr Leu
 100 105 110

 Asp Pro Ile Asp Glu Val Ala Ala Leu Ile Ala Ala Thr Ile His Asp
 115 120 125

 Val Asp His Pro Gly Arg Thr Asn Ser Phe Leu Cys Asn Ala Gly Ser
 130 135 140

 Glu Leu Ala Ile Leu Tyr Asn Asp Thr Ala Val Leu Glu Ser His His
 145 150 155 160

 Ala Ala Leu Ala Phe Gln Leu Thr Thr Gly Asp Asp Lys Cys Asn Ile
 165 170 175

 Phe Lys Asn Met Glu Arg Asn Asp Tyr Arg Thr Leu Arg Gln Gly Ile
 180 185 190

 Ile Asp Met Val Leu Ala Thr Glu Met Thr Lys His Phe Glu His Val
 195 200 205

 Asn Lys Phe Val Asn Ser Ile Asn Lys Pro Leu Ala Thr Leu Glu Glu
 210 215 220

 Asn Gly Glu Thr Asp Lys Asn Gln Glu Val Ile Asn Thr Met Leu Arg
 225 230 235 240

 Thr Pro Glu Asn Arg Thr Leu Ile Lys Arg Met Leu Ile Lys Cys Ala
 245 250 255

 Asp Val Ser Asn Pro Cys Arg Pro Leu Gln Tyr Cys Ile Glu Trp Ala
 260 265 270

 Ala Arg Ile Ser Glu Glu Tyr Phe Ser Gln Thr Asp Glu Glu Lys Gln
 275 280 285

 Gln Gly Leu Pro Val Val Met Pro Val Phe Asp Arg Asn Thr Cys Ser
 290 295 300

 Ile Pro Lys Ser Gln Ile Ser Phe Ile Asp Tyr Phe Ile Thr Asp Met
 305 310 315 320

 Phe Asp Ala Trp Asp Ala Phe Val Asp Leu Pro Asp Leu Met Gln His
 325 330 335

 Leu Asp Asn Asn Phe Lys Tyr Trp Lys Gly Leu Asp Glu Met Lys Leu
 340 345 350

<210> 21
 <211> 341
 <212> PRT
 <213> Homo sapiens

<400> 21
 Met Pro Ile Thr Ile Asn Asp Val Pro Pro Cys Ile Ser Gln Leu Leu
 1 5 10 15
 Asp Asn Glu Glu Ser Trp Asp Phe Asn Ile Phe Glu Leu Glu Ala Ile
 20 25 30
 Thr His Lys Arg Pro Leu Val Tyr Leu Gly Leu Lys Val Phe Ser Arg
 35 40 45
 Phe Gly Val Cys Glu Phe Leu Asn Cys Ser Glu Thr Thr Leu Arg Ala
 50 55 60
 Trp Phe Gln Val Ile Glu Ala Asn Tyr His Ser Ser Asn Ala Tyr His
 65 70 75 80
 Asn Ser Thr His Ala Ala Asp Val Leu His Ala Thr Ala Phe Phe Leu
 85 90 95
 Gly Lys Glu Arg Val Lys Gly Ser Leu Asp Gln Leu Asp Glu Val Ala
 100 105 110
 Ala Leu Ile Ala Ala Thr Val His Asp Val Asp His Pro Gly Arg Thr
 115 120 125
 Asn Ser Phe Leu Cys Asn Ala Gly Ser Glu Leu Ala Val Leu Tyr Asn
 130 135 140
 Asp Thr Ala Val Leu Glu Ser His His Thr Ala Leu Ala Phe Gln Leu
 145 150 155 160
 Thr Val Lys Asp Thr Lys Cys Asn Ile Phe Lys Asn Ile Asp Arg Asn
 165 170 175
 His Tyr Arg Thr Leu Arg Gln Ala Ile Ile Asp Met Val Leu Ala Thr
 180 185 190
 Glu Met Thr Lys His Phe Glu His Val Asn Lys Phe Val Asn Ser Ile
 195 200 205
 Asn Lys Pro Met Ala Ala Glu Ile Glu Gly Ser Asp Cys Glu Cys Asn
 210 215 220
 Pro Ala Gly Lys Asn Phe Pro Glu Asn Gln Ile Leu Ile Lys Arg Met
 225 230 235 240
 Met Ile Lys Cys Ala Asp Val Ala Asn Pro Cys Arg Pro Leu Asp Leu
 245 250 255
 Cys Ile Glu Trp Ala Gly Arg Ile Ser Glu Glu Tyr Phe Ala Gln Thr
 260 265 270
 Asp Glu Glu Lys Arg Gln Gly Leu Pro Val Val Met Pro Val Phe Asp
 275 280 285
 Arg Asn Thr Cys Ser Ile Pro Lys Ser Gln Ile Ser Phe Ile Asp Tyr
 290 295 300

Phe Ile Thr Asp Met Phe Asp Ala Trp Asp Ala Phe Ala His Leu Pro
 305 310 315 320
 Ala Leu Met Gln His Leu Ala Asp Asn Tyr Lys His Trp Lys Thr Leu
 325 330 335
 Asp Asp Leu Glu Cys
 340

<210> 22
 <211> 334
 <212> PRT
 <213> Homo sapiens

<400> 22
 Gly Thr Ala Val Ser Asn Ser Leu Asn Ile Leu Asp Asp Asp Tyr Asn
 1 5 10 15
 Gly Gln Ala Lys Cys Met Leu Glu Lys Val Gly Asn Trp Asn Phe Asp
 20 25 30
 Ile Phe Leu Phe Asp Arg Leu Thr Asn Gly Asn Ser Leu Val Ser Leu
 35 40 45
 Thr Phe His Leu Phe Ser Leu His Gly Leu Ile Glu Tyr Phe His Leu
 50 55 60
 Asp Met Met Lys Leu Arg Arg Phe Leu Val Met Ile Gln Glu Asp Tyr
 65 70 75 80
 His Ser Gln Asn Pro Tyr His Asn Ala Val His Ala Ala Asp Val Thr
 85 90 95
 Gln Ala Met His Cys Tyr Leu Lys Glu Pro Lys Leu Ala Asn Ser Val
 100 105 110
 Thr Pro Trp Asp Ile Leu Leu Ser Leu Ile Ala Ala Ala Thr His Asp
 115 120 125
 Leu Asp His Pro Gly Val Asn Gln Pro Phe Leu Ile Lys Thr Asn His
 130 135 140
 Tyr Leu Ala Thr Leu Tyr Lys Asn Thr Ser Val Leu Glu Asn His His
 145 150 155 160
 Trp Arg Ser Ala Val Gly Leu Leu Arg Glu Ser Gly Leu Phe Ser His
 165 170 175
 Leu Pro Leu Glu Ser Arg Gln Gln Met Glu Thr Gln Ile Gly Ala Leu
 180 185 190
 Ile Leu Ala Thr Asp Ile Ser Arg Gln Asn Glu Tyr Leu Ser Leu Phe
 195 200 205
 Arg Ser His Leu Asp Arg Gly Asp Leu Cys Leu Glu Asp Thr Arg His
 210 215 220

Arg His Leu Val Leu Gln Met Ala Leu Lys Cys Ala Asp Ile Cys Asn
 225 230 235 240

Pro Cys Arg Thr Trp Glu Leu Ser Lys Gln Trp Ser Glu Lys Val Thr
 245 250 255

Glu Glu Phe Phe His Gln Gly Asp Ile Glu Lys Lys Tyr His Leu Gly
 260 265 270

Val Ser Pro Leu Cys Asp Arg His Thr Glu Ser Ile Ala Asn Ile Gln
 275 280 285

Ile Gly Phe Met Thr Tyr Leu Val Glu Pro Leu Phe Thr Glu Trp Ala
 290 295 300

Arg Phe Ser Asn Thr Arg Leu Ser Gln Thr Met Leu Gly His Val Gly
 305 310 315 320

Leu Asn Lys Ala Ser Trp Lys Gly Leu Gln Arg Glu Gln Ser
 325 330

<210> 23

<211> 335

<212> PRT

<213> Homo sapiens

<400> 23

Gly Ile Ile Pro Gln Ala Pro Leu His Leu Leu Asp Glu Asp Tyr Leu
 1 5 10 15

Gly Gln Ala Arg His Met Leu Ser Lys Val Gly Met Trp Asp Phe Asp
 20 25 30

Ile Phe Leu Phe Asp Arg Leu Thr Asn Gly Asn Ser Leu Val Thr Leu
 35 40 45

Leu Cys His Leu Phe Asn Thr His Gly Leu Ile His His Phe Lys Leu
 50 55 60

Asp Met Val Thr Leu His Arg Phe Leu Val Met Val Gln Glu Asp Tyr
 65 70 75 80

His Ser Gln Asn Pro Tyr His Asn Ala Val His Ala Ala Asp Val Thr
 85 90 95

Gln Ala Met His Cys Tyr Leu Lys Glu Pro Lys Leu Ala Ser Phe Leu
 100 105 110

Thr Pro Leu Asp Ile Met Leu Gly Leu Leu Ala Ala Ala His Asp
 115 120 125

Val Asp His Pro Gly Val Asn Gln Pro Phe Leu Ile Lys Thr Asn His
 130 135 140

His Leu Ala Asn Leu Tyr Gln Asn Met Ser Val Leu Glu Asn His His
 145 150 155 160

Trp Arg Ser Thr Ile Gly Met Leu Arg Glu Ser Arg Leu Leu Ala His
 165 170 175
 Leu Pro Lys Glu Met Thr Gln Asp Ile Glu Gln Gln Leu Gly Ser Leu
 180 185 190
 Ile Leu Ala Thr Asp Ile Asn Arg Gln Asn Glu Phe Leu Thr Arg Leu
 195 200 205
 Lys Ala His Leu His Asn Lys Asp Leu Arg Leu Glu Asp Ala Gln Asp
 210 215 220
 Arg His Phe Met Leu Gln Ile Ala Leu Lys Cys Ala Asp Ile Cys Asn
 225 230 235 240
 Pro Cys Arg Ile Trp Glu Met Ser Lys Gln Trp Ser Glu Arg Val Cys
 245 250 255
 Glu Glu Phe Tyr Arg Gln Gly Glu Leu Glu Gln Lys Phe Glu Leu Glu
 260 265 270
 Ile Ser Pro Leu Cys Asn Gln Gln Lys Asp Ser Ile Pro Ser Ile Gln
 275 280 285
 Ile Gly Phe Met Ser Tyr Ile Val Glu Pro Leu Phe Arg Glu Trp Ala
 290 295 300
 His Phe Thr Gly Asn Ser Thr Leu Ser Glu Asn Met Leu Gly His Leu
 305 310 315 320
 Ala His Asn Lys Ala Gln Trp Lys Ser Leu Leu Pro Arg Gln His
 325 330 335

<210> 24
 <211> 336
 <212> PRT
 <213> Homo sapiens

<400> 24
 Leu Ser Tyr His Ala Ser Ala Ala Glu Glu Glu Thr Arg Glu Leu Gln
 1 5 10 15
 Ser Leu Ala Ala Ala Val Val Pro Ser Ala Gln Thr Leu Lys Ile Thr
 20 25 30
 Asp Phe Ser Phe Ser Asp Phe Glu Leu Ser Asp Leu Glu Thr Ala Leu
 35 40 45
 Cys Thr Ile Arg Met Phe Thr Asp Leu Asn Leu Val Gln Asn Phe Gln
 50 55 60
 Met Lys His Glu Val Leu Cys Arg Trp Ile Leu Ser Val Lys Lys Asn
 65 70 75 80
 Tyr Arg Lys Asn Val Ala Tyr His Asn Trp Arg His Ala Phe Asn Thr
 85 90 95

Ala Gln Cys Met Phe Ala Ala Leu Lys Ala Gly Lys Ile Gln Asn Lys
 100 105 110
 Leu Thr Asp Leu Glu Ile Leu Ala Leu Leu Ile Ala Ala Leu Ser His
 115 120 125
 Asp Leu Asp His Arg Gly Val Asn Asn Ser Tyr Ile Gln Arg Ser Glu
 130 135 140
 His Pro Leu Ala Gln Leu Tyr Cys His Ser Ile Met Glu His His His
 145 150 155 160
 Phe Asp Gln Cys Leu Met Ile Leu Asn Ser Pro Gly Asn Gln Ile Leu
 165 170 175
 Ser Gly Leu Ser Ile Glu Glu Tyr Lys Thr Thr Leu Lys Ile Ile Lys
 180 185 190
 Gln Ala Ile Leu Ala Thr Asp Leu Ala Leu Tyr Ile Lys Arg Arg Gly
 195 200 205
 Glu Phe Phe Glu Leu Ile Arg Lys Asn Gln Phe Asn Leu Glu Asp Pro
 210 215 220
 His Gln Lys Glu Leu Phe Leu Ala Met Leu Met Thr Ala Cys Asp Leu
 225 230 235 240
 Ser Ala Ile Thr Lys Pro Trp Pro Ile Gln Gln Arg Ile Ala Glu Leu
 245 250 255
 Val Ala Thr Glu Phe Phe Asp Gln Gly Asp Arg Glu Arg Lys Glu Leu
 260 265 270
 Asn Ile Glu Pro Thr Asp Leu Met Asn Arg Glu Lys Lys Asn Lys Ile
 275 280 285
 Pro Ser Met Gln Val Gly Phe Ile Asp Ala Ile Cys Leu Gln Leu Tyr
 290 295 300
 Glu Ala Leu Thr His Val Ser Glu Asp Cys Phe Pro Leu Leu Asp Gly
 305 310 315 320
 Cys Arg Lys Asn Arg Gln Lys Trp Gln Ala Leu Ala Glu Gln Gln Glu
 325 330 335

 <210> 25
 <211> 336
 <212> PRT
 <213> Homo sapiens

 <400> 25
 Leu Asp Val Leu Ser Tyr His Ala Thr Cys Ser Lys Ala Glu Val Asp
 1 5 10 15
 Lys Phe Lys Ala Ala Asn Ile Pro Leu Val Ser Glu Leu Ala Ile Asp
 20 25 30

Asp Ile His Phe Asp Asp Phe Ser Leu Asp Val Asp Ala Met Ile Thr
 35 40 45

Ala Ala Leu Arg Met Phe Met Glu Leu Gly Met Val Gln Lys Phe Lys
 50 55 60

Ile Asp Tyr Glu Thr Leu Cys Arg Trp Leu Leu Thr Val Arg Lys Asn
 65 70 75 80

Tyr Arg Met Val Leu Tyr His Asn Trp Arg His Ala Phe Asn Val Cys
 85 90 95

Gln Leu Met Phe Ala Met Leu Thr Thr Ala Gly Phe Gln Asp Ile Leu
 100 105 110

Thr Glu Val Glu Ile Leu Ala Val Ile Val Gly Cys Leu Cys His Asp
 115 120 125

Leu Asp His Arg Gly Thr Asn Asn Ala Phe Gln Ala Lys Ser Gly Ser
 130 135 140

Ala Leu Ala Gln Leu Tyr Gly Thr Ser Ala Thr Leu Glu His His His
 145 150 155 160

Phe Asn His Ala Val Met Ile Leu Gln Ser Glu Gly His Asn Ile Phe
 165 170 175

Ala Asn Leu Ser Ser Lys Glu Tyr Ser Asp Leu Met Gln Leu Leu Lys
 180 185 190

Gln Ser Ile Leu Ala Thr Asp Leu Thr Leu Tyr Phe Glu Arg Arg Thr
 195 200 205

Glu Phe Phe Glu Leu Val Ser Lys Gly Glu Tyr Asp Trp Asn Ile Lys
 210 215 220

Asn His Arg Asp Ile Phe Arg Ser Met Leu Met Thr Ala Cys Asp Leu
 225 230 235 240

Gly Ala Val Thr Lys Pro Trp Glu Ile Ser Arg Gln Val Ala Glu Leu
 245 250 255

Val Thr Ser Glu Phe Phe Glu Gln Gly Asp Arg Glu Arg Leu Glu Leu
 260 265 270

Lys Leu Thr Pro Ser Ala Ile Phe Asp Arg Asn Arg Lys Asp Glu Leu
 275 280 285

Pro Arg Leu Gln Leu Glu Trp Ile Asp Ser Ile Cys Met Pro Leu Tyr
 290 295 300

Gln Ala Leu Val Lys Val Asn Val Lys Leu Lys Pro Met Leu Asp Ser
 305 310 315 320

Val Ala Thr Asn Arg Ser Lys Trp Glu Glu Leu His Gln Lys Arg Leu
 325 330 335

<210> 26
<211> 329
<212> PRT
<213> Homo sapiens

<400> 26
Met Glu Lys Leu Ser Tyr His Ser Ile Cys Thr Ser Glu Glu Trp Gln
1 5 10 15
Gly Leu Met Gln Phe Thr Leu Pro Val Arg Leu Cys Lys Glu Ile Glu
20 25 30
Leu Phe His Phe Asp Ile Gly Pro Phe Glu Asn Met Trp Pro Gly Ile
35 40 45
Phe Val Tyr Met Val His Arg Ser Cys Gly Thr Ser Cys Phe Glu Leu
50 55 60
Glu Lys Leu Cys Arg Phe Ile Met Ser Val Lys Lys Asn Tyr Arg Arg
65 70 75 80
Val Pro Tyr His Asn Trp Lys His Ala Val Thr Val Ala His Cys Met
85 90 95
Tyr Ala Ile Leu Gln Asn Asn His Thr Leu Phe Thr Asp Leu Glu Arg
100 105 110
Lys Gly Leu Leu Ile Ala Cys Leu Cys His Asp Leu Asp His Arg Gly
115 120 125
Phe Ser Asn Ser Tyr Leu Gln Lys Phe Asp His Pro Leu Ala Ala Leu
130 135 140
Tyr Ser Thr Ser Thr Met Glu Gln His His Phe Ser Gln Thr Val Ser
145 150 155 160
Ile Leu Gln Leu Glu Gly His Asn Ile Phe Ser Thr Leu Ser Ser Ser
165 170 175
Glu Tyr Glu Gln Val Leu Glu Ile Ile Arg Lys Ala Ile Ile Ala Thr
180 185 190
Asp Leu Ala Leu Tyr Phe Gly Asn Arg Lys Gln Leu Glu Glu Met Tyr
195 200 205
Gln Thr Gly Ser Leu Asn Leu Asn Asn Gln Ser His Arg Asp Arg Val
210 215 220
Ile Gly Leu Met Met Thr Ala Cys Asp Leu Cys Ser Val Thr Lys Leu
225 230 235 240
Trp Pro Val Thr Lys Leu Thr Ala Asn Asp Ile Tyr Ala Glu Phe Trp
245 250 255
Ala Glu Gly Asp Glu Met Lys Lys Leu Gly Ile Gln Pro Ile Pro Met
260 265 270

Met Asp Arg Asp Lys Lys Asp Glu Val Pro Gln Gly Gln Leu Gly Phe		
275	280	285
Tyr Asn Ala Val Ala Ile Pro Cys Tyr Thr Thr Leu Thr Gln Ile Leu		
290	295	300
Pro Pro Thr Glu Pro Leu Leu Lys Ala Cys Arg Asp Asn Leu Ser Gln		
305	310	315
Trp Glu Lys Val Ile Arg Gly Glu Glu		
325		

<210> 27
<211> 345
<212> PRT
<213> Homo sapiens

<400> 27		
Glu Val Tyr Gly Lys Glu Pro Trp Glu Cys Glu Glu Glu Leu Ala		
1	5	10
Glu Ile Leu Gln Ala Glu Leu Pro Asp Ala Asp Lys Tyr Glu Ile Asn		
20	25	30
Lys Phe His Phe Ser Asp Leu Pro Leu Thr Glu Leu Glu Leu Val Lys		
35	40	45
Cys Gly Ile Gln Met Tyr Tyr Glu Leu Lys Val Val Asp Lys Phe His		
50	55	60
Ile Pro Gln Glu Ala Leu Val Arg Phe Met Tyr Ser Leu Ser Lys Gly		
65	70	75
Tyr Arg Lys Ile Thr Tyr His Asn Trp Arg His Gly Phe Asn Val Gly		
85	90	95
Gln Thr Met Phe Ser Leu Leu Val Thr Gly Lys Leu Lys Arg Tyr Phe		
100	105	110
Thr Asp Leu Glu Ala Leu Ala Met Val Thr Ala Ala Phe Cys His Asp		
115	120	125
Ile Asp His Arg Gly Thr Asn Asn Leu Tyr Gln Met Lys Ser Gln Asn		
130	135	140
Pro Leu Ala Lys Leu His Gly Ser Ser Ile Leu Glu Arg His His Leu		
145	150	155
Glu Phe Gly Lys Thr Leu Leu Arg Asp Glu Ser Leu Asn Ile Phe Gln		
165	170	175
Asn Leu Asn Arg Arg Gln His Glu His Ala Ile His Met Met Asp Ile		
180	185	190
Ala Ile Ile Ala Thr Asp Leu Ala Leu Tyr Phe Lys Lys Arg Thr Met		
195	200	205

Phe Gln Lys Ile Val Asp Gln Ser Lys Thr Tyr Glu Ser Glu Gln Glu
 210 215 220
 Trp Thr Gln Tyr Met Met Leu Glu Gln Thr Arg Lys Glu Ile Val Met
 225 230 235 240
 Ala Met Met Met Thr Ala Cys Asp Leu Ser Ala Ile Thr Lys Pro Trp
 245 250 255
 Glu Val Gln Ser Gln Val Ala Leu Leu Val Ala Ala Glu Phe Trp Glu
 260 265 270
 Gln Gly Asp Leu Glu Arg Thr Val Leu Gln Gln Asn Pro Ile Pro Met
 275 280 285
 Met Asp Arg Asn Lys Ala Asp Glu Leu Pro Lys Leu Gln Val Gly Phe
 290 295 300
 Ile Asp Phe Val Cys Thr Phe Val Tyr Lys Glu Phe Ser Arg Phe His
 305 310 315 320
 Glu Glu Ile Thr Pro Met Leu Asp Gly Ile Thr Asn Asn Arg Lys Glu
 325 330 335
 Trp Lys Ala Leu Ala Asp Glu Tyr Asp
 340 345

<210> 28
 <211> 345
 <212> PRT
 <213> Homo sapiens

<400> 28
 Ala Arg Leu Gly Lys Glu Pro Ala Asp Cys Asp Glu Asp Glu Leu Gly
 1 5 10 15
 Glu Ile Leu Lys Glu Glu Leu Pro Gly Pro Thr Thr Phe Asp Ile Tyr
 20 25 30
 Glu Phe His Phe Ser Asp Leu Glu Cys Thr Glu Leu Asp Leu Val Lys
 35 40 45
 Cys Gly Ile Gln Met Tyr Tyr Glu Leu Gly Val Val Arg Lys Phe Gln
 50 55 60
 Ile Pro Gln Glu Val Leu Val Arg Phe Leu Phe Ser Ile Ser Lys Gly
 65 70 75 80
 Tyr Arg Arg Ile Thr Tyr His Asn Trp Arg His Gly Phe Asn Val Ala
 85 90 95
 Gln Thr Met Phe Thr Leu Leu Met Thr Gly Lys Leu Lys Ser Tyr Tyr
 100 105 110
 Thr Asp Leu Glu Ala Phe Ala Met Val Thr Ala Gly Leu Cys His Asp
 115 120 125

Ile Asp His Arg Gly Thr Asn Asn Leu Tyr Gln Met Lys Ser Gln Asn
 130 135 140

Pro Leu Ala Lys Leu His Gly Ser Ser Ile Leu Glu Arg His His Leu
 145 150 155 160

Glu Phe Gly Lys Phe Leu Leu Ser Glu Glu Thr Leu Asn Ile Tyr Gln
 165 170 175

Asn Leu Asn Arg Arg Gln His Glu His Val Ile His Leu Met Asp Ile
 180 185 190

Ala Ile Ile Ala Thr Asp Leu Ala Leu Tyr Phe Lys Lys Arg Ala Met
 195 200 205

Phe Gln Lys Ile Val Asp Glu Ser Lys Asn Tyr Gln Asp Lys Lys Ser
 210 215 220

Trp Val Glu Tyr Leu Ser Leu Glu Thr Thr Arg Lys Glu Ile Val Met
 225 230 235 240

Ala Met Met Met Thr Ala Cys Asp Leu Ser Ala Ile Thr Lys Pro Trp
 245 250 255

Glu Val Gln Ser Lys Val Ala Leu Leu Val Ala Ala Glu Phe Trp Glu
 260 265 270

Gln Gly Asp Leu Glu Arg Thr Val Leu Asp Gln Gln Pro Ile Pro Met
 275 280 285

Met Asp Arg Asn Lys Ala Ala Glu Leu Pro Lys Leu Gln Val Gly Phe
 290 295 300

Ile Asp Phe Val Cys Thr Phe Val Tyr Lys Glu Phe Ser Arg Phe His
 305 310 315 320

Glu Glu Ile Leu Pro Met Phe Asp Arg Leu Gln Asn Asn Arg Lys Glu
 325 330 335

Trp Lys Ala Leu Ala Asp Glu Tyr Glu
 340 345

<210> 29

<211> 345

<212> PRT

<213> Homo sapiens

<400> 29

Lys Leu Asn Val Asp Val Ile Asp Asp Cys Glu Glu Lys Gln Leu Val
 1 5 10 15Ala Ile Leu Lys Glu Asp Leu Pro Asp Pro Arg Ser Ala Glu Leu Tyr
 20 25 30Glu Phe Arg Phe Ser Asp Phe Pro Leu Thr Glu His Gly Leu Ile Lys
 35 40 45

Cys Gly Ile Arg Leu Phe Phe Glu Ile Asn Val Val Glu Lys Phe Lys
 50 55 60

Val Pro Val Glu Val Leu Thr Arg Trp Met Tyr Thr Val Arg Lys Gly
 65 70 75 80

Tyr Arg Ala Val Thr Tyr His Asn Trp Gln His Gly Phe Asn Val Gly
 85 90 95

Gln Thr Met Phe Thr Leu Leu Met Thr Gly Arg Leu Lys Lys Tyr Tyr
 100 105 110

Thr Asp Leu Glu Ala Phe Ala Met Leu Ala Ala Ala Phe Cys His Asp
 115 120 125

Ile Asp His Arg Gly Thr Asn Asn Leu Tyr Gln Met Lys Ser Thr Ser
 130 135 140

Pro Leu Ala Arg Leu His Gly Ser Ser Ile Leu Glu Arg His His Leu
 145 150 155 160

Glu Tyr Ser Lys Thr Leu Leu Gln Asp Glu Ser Leu Asn Ile Phe Gln
 165 170 175

Asn Leu Asn Lys Arg Gln Phe Glu Thr Val Ile His Leu Phe Glu Val
 180 185 190

Ala Ile Ile Ala Thr Asp Leu Ala Leu Tyr Phe Lys Lys Arg Thr Met
 195 200 205

Phe Gln Lys Ile Val Asp Ala Cys Glu Gln Met Gln Thr Glu Glu Glu
 210 215 220

Ala Ile Lys Tyr Val Thr Val Asp Pro Thr Lys Lys Glu Ile Ile Met
 225 230 235 240

Ala Met Met Met Thr Ala Cys Asp Leu Ser Ala Ile Thr Lys Pro Trp
 245 250 255

Glu Val Gln Ser Gln Val Ala Leu Met Val Ala Asn Glu Phe Trp Glu
 260 265 270

Gln Gly Asp Leu Glu Arg Thr Val Leu Gln Gln Gln Pro Ile Pro Met
 275 280 285

Met Asp Arg Asn Lys Arg Asp Glu Leu Pro Lys Leu Gln Val Gly Phe
 290 295 300

Ile Asp Phe Val Cys Thr Phe Val Tyr Lys Glu Phe Ser Arg Phe His
 305 310 315 320

Lys Glu Ile Thr Pro Met Leu Ser Gly Leu Gln Asn Asn Arg Val Glu
 325 330 335

Trp Lys Ser Leu Ala Asp Glu Tyr Asp
 340 345

<210> 30

<211> 334

<212> PRT

<213> Homo sapiens

<400> 30

Met	Met	Met	Tyr	His	Met	Lys	Val	Ser	Asp	Asp	Glu	Tyr	Thr	Lys	Leu
1					5									15	

Leu	His	Asp	Gly	Ile	Gln	Pro	Val	Ala	Ala	Ile	Asp	Ser	Asn	Phe	Ala
				20				25					30		

Ser	Phe	Thr	Tyr	Thr	Pro	Arg	Ser	Leu	Pro	Glu	Asp	Asp	Thr	Ser	Met
				35				40					45		

Ala	Ile	Leu	Ser	Met	Leu	Gln	Asp	Met	Asn	Phe	Ile	Asn	Asn	Tyr	Lys
				50			55				60				

Ile	Asp	Cys	Pro	Thr	Leu	Ala	Arg	Phe	Cys	Leu	Met	Val	Lys	Lys	Gly
				65				70			75		80		

Tyr	Arg	Asp	Pro	Pro	Tyr	His	Asn	Trp	Met	His	Ala	Phe	Ser	Val	Ser
				85				90				95			

His	Phe	Cys	Tyr	Leu	Leu	Tyr	Lys	Asn	Leu	Glu	Leu	Thr	Asn	Tyr	Leu
				100				105				110			

Glu	Asp	Ile	Glu	Ile	Phe	Ala	Leu	Phe	Ile	Ser	Cys	Met	Cys	His	Asp
				115				120			125				

Leu	Asp	His	Arg	Gly	Thr	Asn	Asn	Ser	Phe	Gln	Val	Ala	Ser	Lys	Ser
					130			135			140				

Val	Leu	Ala	Ala	Leu	Tyr	Ser	Ser	Glu	Gly	Ser	Val	Met	Glu	Arg	His
				145				150			155		160		

His	Phe	Ala	Gln	Ala	Ile	Ala	Ile	Leu	Asn	Thr	His	Gly	Cys	Asn	Ile
					165				170			175			

Phe	Asp	His	Phe	Ser	Arg	Lys	Asp	Tyr	Gln	Arg	Met	Leu	Asp	Leu	Met
					180			185			190				

Arg	Asp	Ile	Ile	Leu	Ala	Thr	Asp	Leu	Ala	His	His	Leu	Arg	Ile	Phe
				195				200				205			

Lys	Asp	Leu	Gln	Lys	Met	Ala	Glu	Val	Gly	Tyr	Asp	Arg	Asn	Asn	Lys
					210			215			220				

Gln	His	His	Arg	Leu	Leu	Leu	Cys	Leu	Leu	Met	Thr	Ser	Cys	Asp	Leu
				225				230			235		240		

Ser	Asp	Gln	Thr	Lys	Gly	Trp	Lys	Thr	Arg	Lys	Ile	Ala	Glu	Leu
					245			250			255			

Ile	Tyr	Lys	Glu	Phe	Phe	Ser	Gln	Gly	Asp	Leu	Glu	Lys	Ala	Met	Gly
					260			265			270				

Asn Arg Pro Met Glu Met Met Asp Arg Glu Lys Ala Tyr Ile Pro Glu
 275 280 285

Leu Gln Ile Ser Phe Met Glu His Ile Ala Met Pro Ile Tyr Lys Leu
 290 295 300

Leu Gln Asp Leu Phe Pro Lys Ala Ala Glu Leu Tyr Glu Arg Val Ala
 305 310 315 320

Ser Asn Arg Glu His Trp Thr Lys Val Ser His Lys Phe Thr
 -325 330

<210> 31

<211> 333

<212> PRT

<213> Homo sapiens

<400> 31

Ser Phe Leu Asp Asn His Lys Lys Leu Thr Pro Arg Arg Asp Val Pro
 1 5 10 15

Thr Tyr Pro Lys Tyr Leu Leu Ser Pro Glu Thr Ile Glu Ala Leu Arg
 20 25 30

Lys Pro Thr Phe Asp Val Trp Leu Trp Glu Pro Asn Glu Met Leu Ser
 35 40 45

Cys Leu Glu His Met Tyr His Asp Leu Gly Leu Val Arg Asp Phe Ser
 50 55 60

Ile Asn Pro Val Thr Leu Arg Arg Trp Leu Phe Cys Val His Asp Asn
 65 70 75 80

Tyr Arg Asn Asn Pro Phe His Asn Phe Arg His Cys Phe Cys Val Ala
 85 90 95

Gln Met Met Tyr Ser Met Val Trp Leu Cys Ser Leu Gln Glu Lys Phe
 100 105 110

Ser Gln Thr Asp Ile Leu Ile Leu Met Thr Ala Ala Ile Cys His Asp
 115 120 125

Leu Asp His Pro Gly Tyr Asn Asn Thr Tyr Gln Ile Asn Ala Arg Thr
 130 135 140

Glu Leu Ala Val Arg Tyr Asn Asp Ile Ser Pro Leu Glu Asn His His
 145 150 155 160

Cys Ala Val Ala Phe Gln Ile Leu Ala Glu Pro Glu Cys Asn Ile Phe
 165 170 175

Ser Asn Ile Pro Pro Asp Gly Phe Lys Gln Ile Arg Gln Gly Met Ile
 180 185 190

Thr Leu Ile Leu Ala Thr Asp Met Ala Arg His Ala Glu Ile Met Asp
 195 200 205

Ser Phe Lys Glu Lys Met Glu Asn Phe Asp Tyr Ser Asn Glu Glu His
 210 215 220
 Met Thr Leu Leu Lys Met Ile Leu Ile Lys Cys Cys Asp Ile Ser Asn
 225 230 235 240
 Glu Val Arg Pro Met Glu Val Ala Glu Pro Trp Val Asp Cys Leu Leu
 245 250 255
 Glu Glu Tyr Phe Met Gln Ser Asp Arg Glu Lys Ser Glu Gly Leu Pro
 260 265 270
 Val Ala Pro Phe Met Asp Arg Asp Lys Val Thr Lys Ala Thr Ala Gln
 275 280 285
 Ile Gly Phe Ile Lys Phe Val Leu Ile Pro Met Phe Glu Thr Val Thr
 290 295 300
 Lys Leu Phe Pro Met Val Glu Glu Ile Met Leu Gln Pro Leu Trp Glu
 305 310 315 320
 Ser Arg Asp Arg Tyr Glu Glu Leu Lys Arg Ile Asp Asp
 325 330

<210> 32
 <211> 124
 <212> PRT
 <213> Homo sapiens

<400> 32
 Glu Glu Glu Thr Arg Glu Leu Gln Ser Leu Ala Ala Ala Val Val Pro
 1 5 10 15
 Ser Ala Gln Thr Leu Lys Ile Thr Asp Phe Ser Phe Ser Asp Phe Glu
 20 25 30
 Leu Ser Asp Leu Glu Thr Ala Leu Cys Thr Ile Arg Met Phe Thr Asp
 35 40 45
 Leu Asn Leu Val Gln Asn Phe Gln Met Lys His Glu Val Leu Cys Arg
 50 55 60
 Trp Ile Leu Ser Val Lys Lys Asn Tyr Arg Lys Asn Val Ala Tyr His
 65 70 75 80
 Asn Trp Arg His Ala Phe Asn Thr Ala Gln Cys Met Phe Ala Ala Leu
 85 90 95
 Lys Ala Gly Lys Ile Gln Asn Lys Leu Thr Asp Leu Glu Ile Leu Ala
 100 105 110
 Leu Leu Ile Ala Ala Leu Ser His Asp Leu Asp His
 115 120

<210> 33
<211> 118
<212> PRT
<213> Homo sapiens

<400> 33
Leu Ala Gln Leu Tyr Cys His Ser Ile Met Glu His His His Phe Asp
1 5 10 15
Gln Cys Leu Met Ile Leu Asn Ser Pro Gly Asn Gln Ile Leu Ser Gly
20 25 30
Leu Ser Ile Glu Glu Tyr Lys Thr Thr Leu Lys Ile Ile Lys Gln Ala
35 40 45
Ile Leu Ala Thr Asp Leu Ala Leu Tyr Ile Lys Arg Arg Gly Glu Phe
50 55 60
Phe Glu Leu Ile Arg Lys Asn Gln Phe Asn Leu Glu Asp Pro His Gln
65 70 75 80
Lys Glu Leu Phe Leu Ala Met Leu Met Thr Ala Cys Asp Leu Ser Ala
85 90 95
Ile Thr Lys Pro Trp Pro Ile Gln Gln Arg Ile Ala Glu Leu Val Ala
100 105 110
Thr Glu Phe Phe Asp Gln
115

<210> 34
<211> 59
<212> PRT
<213> Homo sapiens

<400> 34
Leu Met Asn Arg Glu Lys Lys Asn Lys Ile Pro Ser Met Gln Val Gly
1 5 10 15
Phe Ile Asp Ala Ile Cys Leu Gln Leu Tyr Glu Ala Leu Thr His Val
20 25 30
Ser Glu Asp Cys Phe Pro Leu Leu Asp Gly Cys Arg Lys Asn Arg Gln
35 40 45
Lys Trp Gln Ala Leu Ala Glu Gln Gln Glu Lys
50 55